WORK SHEET FOR ESTIMATING MAXIMUM DESIGN FLOWS FOR MUNICIPAL WWTPs

INSTRUCTIONS: This work sheet should be used to estimate your maximum day, maximum week and maximum month design flows given your average design flow. Where an approved facilities plan has evaluated the peak design flows, those values should be used.

The person filling out this form will need the average design flow value for the facility (usually from a facility plan), records on continuous flow monitoring (copies of your Discharge Monitoring Reports) for at least 3 years of record and a calculator.

When selecting data from flow records to enter onto the form, exercise some judgement. You may want to exclude certain extreme values from consideration. An example might be data from an extremely unusual event or circumstance which would not be expected to be duplicated during the design life of the treatment plant.

This work sheet should be completed for EACH of a minimum of three years of data used. The corresponding peak design flows should then be averaged. <u>Start by making at least two more copies of this form.</u> Complete one of the forms for the most recent 12 month period. Then take a second copy for the 12 months before that. And so on. Then average each of the maximum design flows for the number of 12 month periods you analyzed to obtain final values for your maximum daily, maximum weekly and maximum monthly design flows.

COMPLETE THE FOLLOWING SECTIONS AS APPROPRIATE:

12 MONTH RECORD from _____/_____ (Month/Year) through _____/_____ (Month/Year)

A. Enter Average Design Flow (may also be called Average Daily Design Flow or Average Annual Design Flow) _____ A.

B. Calculate CURRENT AVERAGE FLOW by determining an annual average of the DMR Monthly Average Effluent Flows.

Average of Monthly Average Flows = _____ B.

Data Used from: ____/____ - ____/____
(Enter Month/Year Info)

For Estimate of Maximum Day Design Flow:

C. Within this reporting period, what is the Daily Maximum Flow recorded in the DMRs?

Date of Daily Maximum Flow: ____/____/____ _____ C.

D. To estimate a MAXIMUM DAY PEAKING FACTOR, divide C by B.

(C ÷ B) = _____ D.

DESIGN FLOW WORKSHEET (continued)

E. To estimate a MAXIMUM DAY DESIGN FLOW, multiply A by D.

(A X D) = _____ E.

For Estimate of Maximum Week Design Flow:

F. Within this reporting period, what are the FOUR HIGHEST Daily Maximum Flow Values recorded on the DMRs?

_____ MGD ____/____/____ (Date)

_____ MGD ____/____/____ (Date)

_____ MGD ____/____/____ (Date)

_____ MGD ____/____/____ (Date)

G. For <u>each</u> of the four highest Daily flow values, calculate a weekly average flow value using seven consecutive days from the DMRs and including the daily maximum value

_____ MGD From ____/____/____ to ____/____/____ (Date)

_____ MGD From ____/____/____ to ____/____/____ (Date)

_____ MGD From ____/____/____ to ____/____/____ (Date)

_____ MGD From ____/____/____ to ____/____/____ (Date)

H. To estimate a MAXIMUM WEEK PEAKING FACTOR, divide the HIGHEST average in G by B.

(G ÷ B) = _____ H.

I. To estimate a MAXIMUM WEEK DESIGN FLOW, multiply A by H.

(A X H) = _____ I.

For Estimate of Maximum Month Design Flow:

J. Within this reporting period, what is the <u>highest</u> Monthly Average Flow recorded on the DMRs?

. Date of Highest Monthly Average Flow: ____/____ (Month/Year)
_____J.

DESIGN FLOW WORKSHEET (continued)

K. To estimate a MAXIMUM MONTH PEAKING FACTOR, divide J by B.

(J ÷ B) = _____ K.

L. To estimate a MAXIMUM MONTH DESIGN FLOW, multiply A by K.

(A X K) = _____ L.

NOTE: This is one of any number of ways to estimate the peak design flows. Using this work sheet, even a permittee who is dependent on the DMR forms and a calculator should be able to estimate peak design flows. However, permittees with more sophisticated data management systems may want to determine the current weekly and monthly maximum plant flows through rolling averages. The permittee may also want to determine the current average annual flow by averaging the totaled flow over the record review period by the number of days, which may be more accurate than the proposed grand average of monthly average flows. We have recommended using three years of data because the permittee is legally obligated to keep only three years of data. The permittee can use more data if they wish.Instructions for Use of Preliminary Limits

To help you or your lab determine if you should perform additional monitoring above the minimum required or perform re-testing, we have provided you with preliminary limits for many of the substances we require you to monitor for. The preliminary limits for your facility are attached. Use the following narrative instructions to help guide you through Figures 1 and 2 to find out if you should stop or continue to collect sample results.